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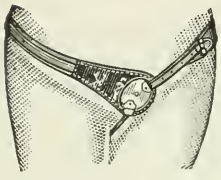

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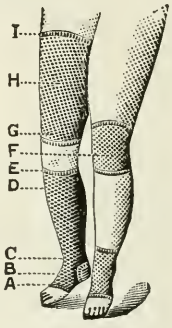

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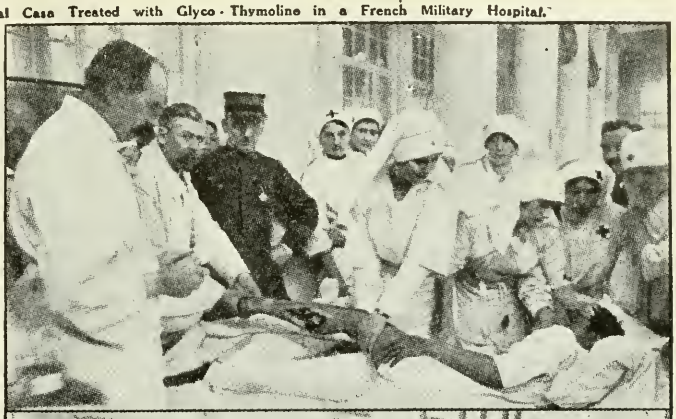

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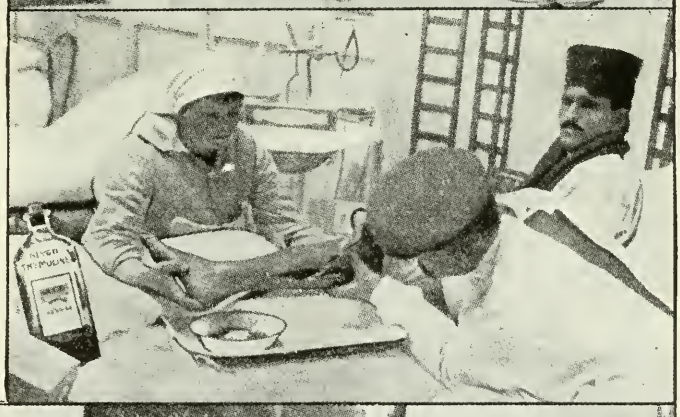

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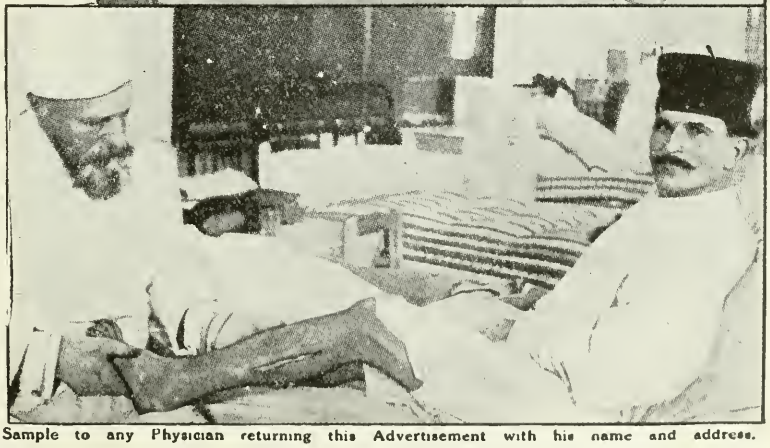

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THE EVOLUTION OF OPHTHALMIC LENSES AND A NEW SYSTEM OF DESIGNING THEIR POWERS.*

By Max Poser, F.R.M.S.,
Rochester, N. Y.

Chapter I.

When we speak of ophthalmic lenses we all know that their purpose is to correct defective vision, but little do we trouble, generally speaking, about the real theory of ophthalmic lenses from an optical point of view. As a matter of fact, eyeglasses have been known to the people of various countries for centuries. No attempt, however, was made in ancient times to give the proper attention to this matter from a scientific point of view.

The first scientific publication, so far as we know, appeared in the year 1716, and was written by the mathematician, Chr. G. Hertel of Halle, Germany. He describes in his little book a slightly bent-through meniscus which he recommended as a reading glass with the concave surface next to the eye; for short-sighted persons he also recommended the meniscus form, but, curious to say, with the convex side next to the eye. If there is not a printer's error in describing the latter mode, we must conclude that his method lacked practical experience. His ideas undoubtedly came at too early a date, and for quite a considerable time were not understood. Hertel at the time also pointed out the comfort of a green glass for the eye.

In 1784 Benjamin Franklin invented the bi-focal glasses for near and distant objects.

In 1804 Dr. William Hyde Wollaston wrote a number of articles in which he shows the advantage of his periscopic form over the ordinary spectacle lens.

A few years later, in 1813, Sir David Brewster wrote about his bi and tri-focal glasses, and in 1827 the astronomer, G. B. Airy,

*Read at the meeting of the Baltimore City Medical Society, April 21, 1915.

corrected his eyesight with a sphero cylinder. This lens was made by a skilled optician named Fuller at Ipswich, England.

In the year 1836 J. Schnaitmann of this country took out a patent for a one-piece bi-focal.

In 1840 the famous German mathematician Gauss shows us in his theories the optical principle of a lens, establishing the now well-known principal points and planes, etc.

From E. Javal we learn that between the years 1840 and 1844 the optician Suscipi of Rome made a toric lens with the outer surface spherical convex and the inner toric concave.

In 1845 Professor Listing discovered the now well-known nodal points, which are of great importance in lens systems not surrounded by air, but with ophthalmic lenses these nodal points are of less importance, since they fall together with the principal points of Gauss.

In 1866 the employment of the metric system of measuring and designating the power of ophthalmic lenses was advocated by the ophthalmologist Nagel, in place of the old English inch system then in use.

Since 1872 the name "Dioptrie," proposed by F. Monayer of Strassburg, was adopted, and which is now universally used as a unit in the metric system for numbering and designating the refractive power of a lens.

About this period the ophthalmic lens industry made great strides in America. The Bausch & Lomb Optical Co., having begun the manufacture of ophthalmic lenses as far back as 1853 for individual requirements, experienced a great demand for their manufacture, and were compelled in the early seventies to lay down an extensive, complete grinding equipment, with the ultimate intent of supplying the trade at large. With the increase for the output of these ophthalmic lenses, of course, greater experience was gained and new types of lenses developed, comprising at this date a full series covering every field of ophthalmic optics.

In the year 1898 Dr. Ostwald, in 1899 Professor Tscherning, and in 1901 Dr. Percival referred to the importance of the center of rotation of the eye in connection with the correction of ophthalmic lenses.

With meniscus and toric forms there was but one further development desirable—the entire elimination of the astigmatic errors for oblique pencils, and which has been finally consummated in the Punktal lenses computed by the Carl Zeiss Works, at Jena, and now introduced in the American market by the Bausch & Lomb Optical Co.

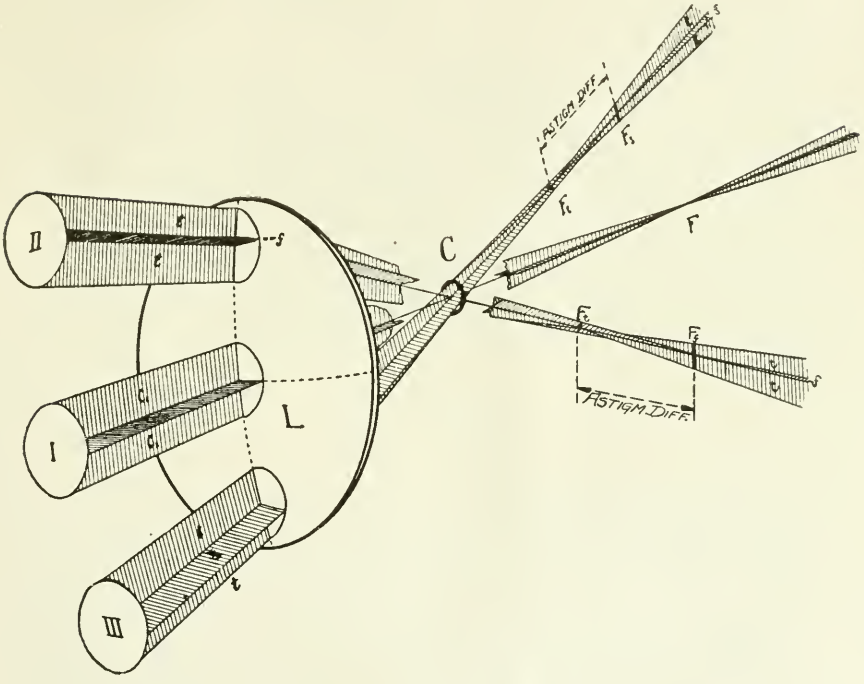
Chapter II.

In September, 1912, we published a paper, "The Eye and the Lens," in which we called attention to the fact that when the eye is rotated like a ball in its socket, with the lens stationary, it will look through the different portions of the ophthalmic lens from center to the margin, and the diagrams accompanying this paper clearly

show the restricted field of an ordinary flat lens in comparison with the periscopic and meniscus forms.

We pointed out at the time that the restricted field of the ordinary ophthalmic lens is due to the lens not being astigmatically corrected for the oblique pencils of rays.

In the diagram we now show on the screen you will observe how these astigmatic differences are brought about. L represents a double convex lens; C the center of rotation of an eye looking through the lens, and the object point in axial position in front of the lens is imaged at F. The light coming from this central object is represented by the pencil I, C being a horizontal and C^1 a vertical



section of this pencil; both sections unite in F, and therefore all other sections of the pencil between C and C^1 also unite in F, and consequently an object point is shown as a point in the image and no astigmatism occurs.

If the eye is now looking through the margin of the lens, the beam of light coming from an object point centrally to the line of sight is shown by the pencils II and III. Since all rays taking part in forming the image of an object on the retina must pass through the center of rotation, we can demonstrate how the horizontal and vertical sections of these beams of light will behave in the focal point.

The refraction of the section t of beam II will differ from the refraction of the section f, and both sections will differ from the refraction of the central beam. Each of these sections t and f will form an image of its own, and this image will not be a point, but a line.

The image formed by the section f lies in the plane of the section t, and the image of the section t lies in the plane of the section f. Sections through the axis of the pencil between the f and t sections will form their image lines between Ff and Ft, and the distance between Ff and Ft is the astigmatic difference. In other words, the pencils of light passing through the margin of the lens are astigmatic, and an eye, when looking through the lens in the direction of the pencils II and III, will not perceive a sharply-defined image of the object.

The amount of astigmatism of the same field depends upon the shape of the lens and its distance from the center of rotation of the eye. For the same lens, astigmatism increases the nearer to the margin the pencil of light passes through the lens.

Following this theory, we constructed a large variety of toric and meniscus lenses in order to obtain highest efficiency.

Considering what has been accomplished up to this point, we may safely say that ophthalmic lenses of the deeper forms used at the present day already are of a high standard of quality. It is, therefore, the more to be appreciated that with the new Punktal and Katral lenses we have still further advanced toward the ideal lens.

Chapter III.

PUNKTAL LENSES.

What is a Punktal lens?

The name "Punktal" has been taken from the German language, meaning that lenses of this description give a uniform and sharp definition from the center to the margin of the field, showing an object point as a point in the image with equal sharpness in any direction over the entire field of view.

Punktal lenses are given the form of the surface that, for an eye rotating under the action of the muscles on its center of rotation, the image of an object element may be clearly defined on the middle of the macula lutea (yellow spot).

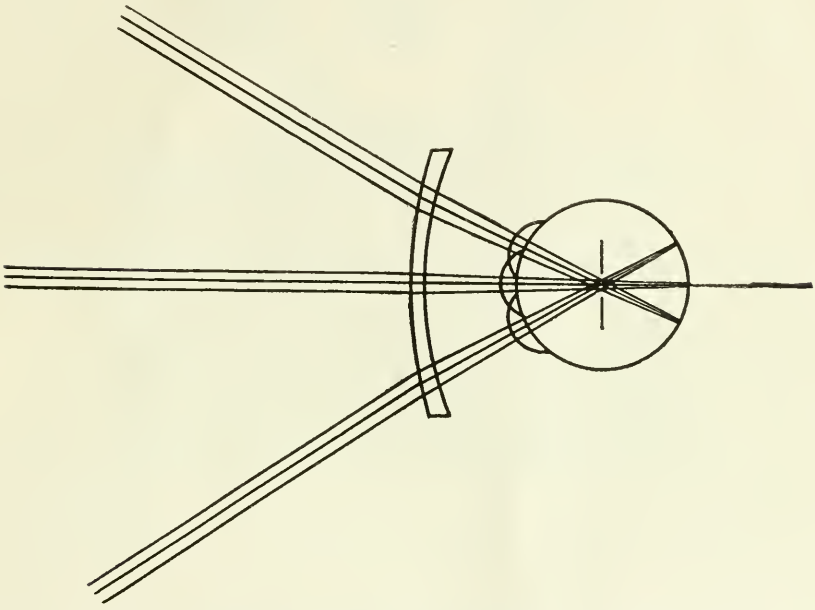
To go into the theory of these lenses would lead us to a very lengthy discussion. We shall, therefore, restrict our attention to a brief discussion of the main features of these Punktal lenses in comparison with the present forms of ophthalmic lenses.

As in direct vision, with the head steady, one point is common to all possible positions of the line of vision, i. e., the center of rotation. To this center of rotation, which we may consider to be the center of a diaphragm through which all image-forming rays will have to pass, we shall calculate all the curves of Punktal lenses.

The distance from the center of rotation of the eye to the vertex

of the Punktal lens surface facing the eye has been chosen to be 25 mm., i. e., 12 mm. from the apex of the cornea to the nearest lens surface.

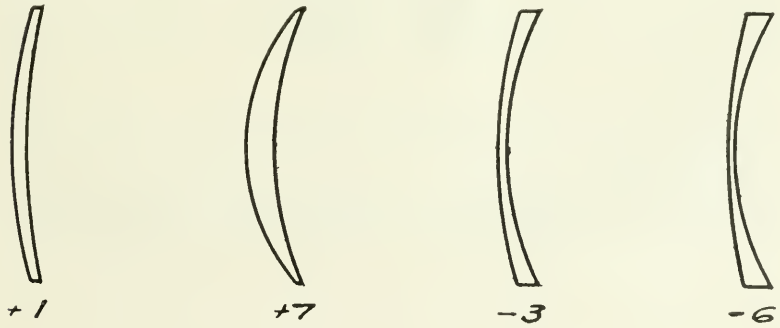
The next diagram shows the center of rotation serving as an imaginary diaphragm, through which all rays forming an image of an object on the center of the macula lutea (yellow spot) must pass.



Having fixed the distance of our imaginary diaphragm to be 25 mm. from the nearest lens surface, we can correct our lenses for astigmatism of oblique pencils within an angle of vision of 60 degrees.

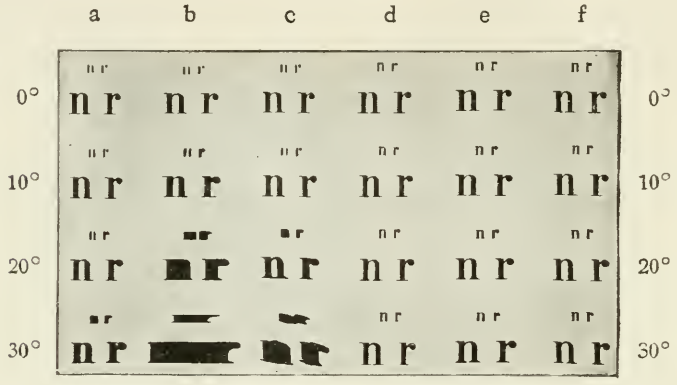
As the power of the lens and the distance of the imaginary diaphragm are given, there is only one variation left, viz., the form, and this has been chosen to be of the deeply curved, toric form.

Special curves, however, have to be used with each number in order to obtain the precise correction of astigmatism of oblique



pencils over the entire field of view of 60 degrees, and consequently *no base curve system can* be employed with these Punktal lenses. The next diagram will give us an illustration of the same.

In the next diagram we shall see a comparative test of an ordinary sphero-cylinder lens of +4, combined with a +3 dioptrie and the Punktal lens of the same power. The photographs of the type are taken through the center of the lens, and at angles of 10, 20 and 30 degrees from the center. Column "a" represents the photographs of the type taken through the sphero-cylinder lens at the plane containing the axis of the cylinder. Column "d" is a row



a, b, c: Photographs of Type taken through a Sphero-Cylindrical Lens of + 4.00 Sph. ⊃ + 3.00 Cyl.

d, e, f: Photographs of same taken through an Astigmatic Punktal lens of + 4.00 Sph. ⊃ + 3.00 Cyl.

a and d: Rotation within Plane containing Axis of Cylinder.

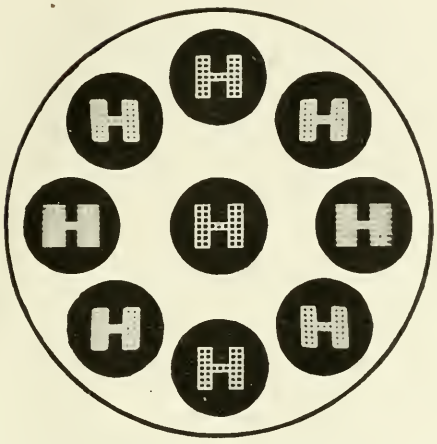
b and e: Rotation within Plane at right angles to Axis of Cylinder.

c and f: Rotation within Plane at 45° to Axis of Cylinder.

of photographs taken in a similar manner through the Punktal lens. Column "b" is taken through the sphero-cylinder lens at right angles to the axis of the cylinder. Column "e" represents similar photographs taken through that portion of a Punktal lens. Column "c" is taken through the sphero-cylinder lens at 45 degrees to the axis of the cylinder, and column "f" represents similar photographs taken under the same condition through the Punktal lens.

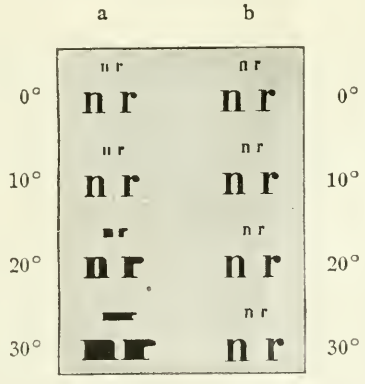
From these actual photographs it is clearly shown that the Punktal lens gives a uniform definition in all positions, a result which speaks for itself.

The next slide will show us an interesting comparison of photographic groups of the letter "H" taken through a sphero-cylinder lens of +3.0 D Sph. combined with +2.0 D Cyl. The single photo-



graphs of the letter "H" are taken in the same manner as the first and last letters of the rows shown in the columns a, b, c, d, e, f.

The next diagram will show the photographs taken in the first-described manner, but through an ordinary bi-convex lens of +5 D and a Punktal lens of the same power. Column "a" represents the photographs taken through the bi-convex lens, and column "b" the photographs taken through the Punktal lens. The lenses mentioned have been chosen merely for the purpose of comparison. In periscopic and meniscus forms the astigmatism, of course, would be less in proportion. From this illustration it will be seen that the Punktal lenses, without doubt, are of the highest quality



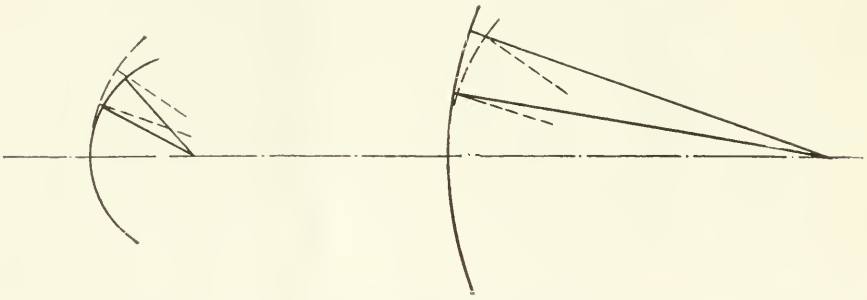
a: Photographs of Type taken through a Bi-Convex Lens of 5. D.

b: Photographs of same taken through a Punktal lens of 5. D

of modern ophthalmic lenses. Their form, generally speaking, is deeper than the present toric and meniscus forms, with the actual weight reduced to a minimum. The power of these Punktal lenses, is designated in vertex refraction (D_v) instead of dioptries, which means that their focal measurement is taken from the center (vertex) of the lens surface nearest the eye, to the back focal point, instead of, as in the dioptric system, where the focus is taken from the principal point to the focal point.

We shall discuss the usefulness of vertex refraction later on, and only state here that these Punktal lenses are designated in vertex refraction for the minus lenses up to $20D_v$ and for the plus lenses up to 7 D_v; beyond 7 D_v plus the Katral lenses take their places.

Katral lenses are constructed similar to Punktal lenses, but in order to obtain the high degree of accuracy, one lens surface has to be aspherical, i. e., deformed, since spherical surfaces do not lend themselves to the correction of astigmatism for the marginal zone of high power plus lenses with an angle of clear vision of 60 degrees. This deformation of the surface, however, is only slight.



You will observe in the next diagram two aspheric surfaces indicated, showing the deviation of the normal in connection with the addition of material, the upper one showing a dotted line toward the margin, which represents the deformation of the outer surface of a Katral lens. The second diagram shows an inner curve with the dotted line indicating the deformation of the inner surface of a Katral lens. The deviation of the normal in connection with these additions of material as shown in the diagram is somewhat exaggerated, in order to serve as a better demonstration. For a real lens of 12 D_v the radius of the actual osculating sphere is 140 m.m., and the difference of the aspheric surface represents only 0.16 m.m.

You may wonder now how it is possible that such an apparently insignificant deviation from the ordinary spherical form may correct the astigmatism of oblique pencils. This is easily explained.

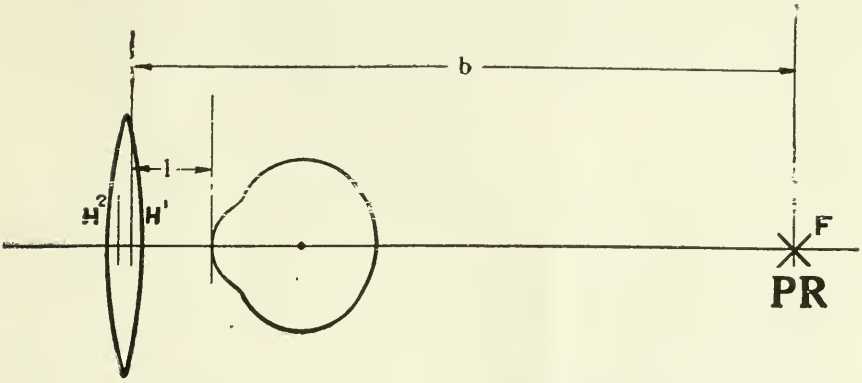
The correction of this aberration not only depends on this difference itself, but also on its first and second derivative. This will give some idea as to the accuracy to which these lenses must be

worked, and consequently the cost of manufacture will be considerably higher. Katral lenses are as perfectly corrected as the Punktal lenses. They are supplied in powers of +7 (D_v) to 20 (D_v) and more, and like Punktal lenses, if of toric form, will furnish a given astigmatic value from center to margin uniformly over the entire field of 60 degrees.

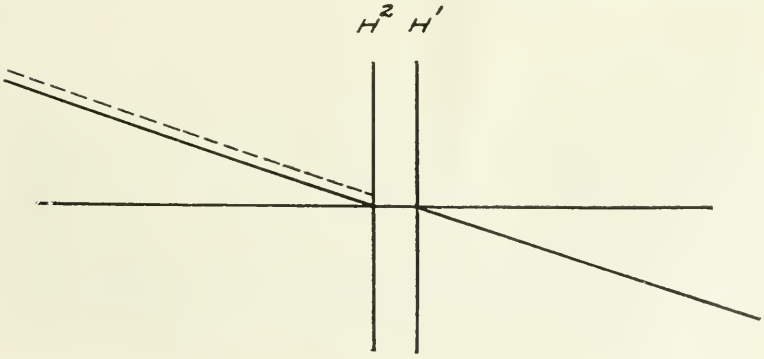
Persons operated on for cataract will find lenses of this description a direct relief in comparison with the old form of lenses.

Chapter IV.

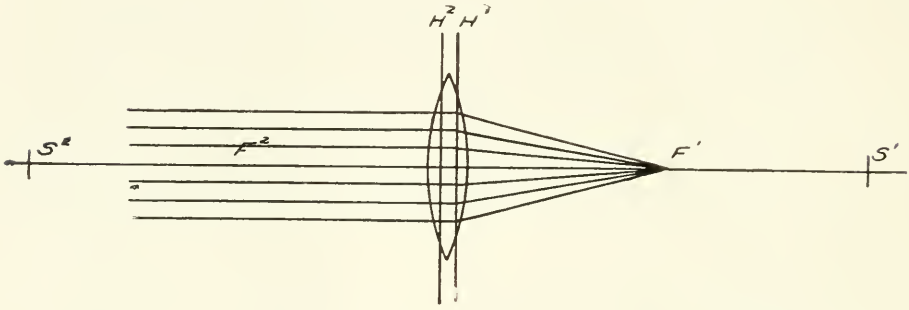
We will now discuss this new vertex refraction system in comparison with the dioptric system, and to arrive at a clear understanding it will be necessary to go into the details with reference to the principal points of a lens.

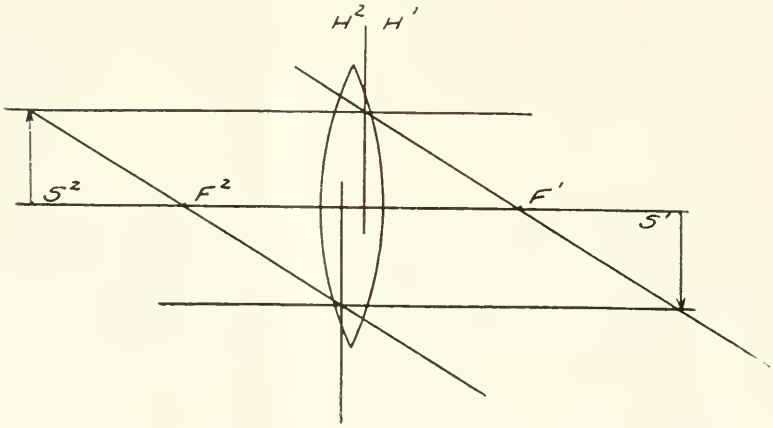


In our first diagram we show an eye and an ordinary bi-convex lens in correct position to refract the eye. You will observe in the diagram the star with the letters "P.R." which represent the punctum remotum, i. e., the far point of an eye at which objects are seen clearly defined with the accommodation of the eye relaxed.



An ametropic eye is corrected when the lens images the object in the punctum remotum. The point in the center of the eye as seen here represents the center of rotation of the eye. It is the point around which the eye turns when looking at objects situated more or less outside of the axis of the lens, without turning the head. The points marked H_1, H_2, are called the principal points of the lens. Their property is that any ray which moves toward one of them will, after traversing the lens, emerge parallel to its former path, but as if it had passed through the second of them, as indicated by the dotted line shown in the next diagram.





In the next diagram we have a thick bi-convex lens, the surface curves of which are equal. With such a lens the principal points H_1, H_2, are located within the lens, F_1, F_2, are the principal focal points and S_1, S_2, are called the symmetric point. If light is passing through this lens parallel to its axis, say from left to right, it will be focused at F_1. S_1, S_2, are situated on the principal axis at double the focal distance from the principal points; hence the focal lengths of all spectacle lenses which concern us are to be measured from F_1 to H_1.

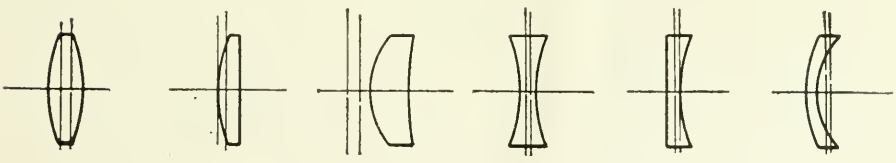
In the next diagram we shall see how these principal points can be demonstrated in a simple manner, according to the Gauss theory.

We draw a line through the axis of a bi-convex lens, S_1, S_2, indicating the symmetric points. F_1 F_2 are the principal focal points, A being the object and B the image of same in natural size. We now draw a line toward the lens from A through the focal point F_2, and a second line from A parallel to the axis of the lens passing through the lens. We now construct a line parallel to the first line, but passing through the back focus F_1, and a fourth line from B parallel to the axis of the lens. From the points where the first and fourth and the second and third lines cross each other we draw lines perpendicular through the axis of the lens, and where the two last mentioned lines cross the axis the principal points will be found.

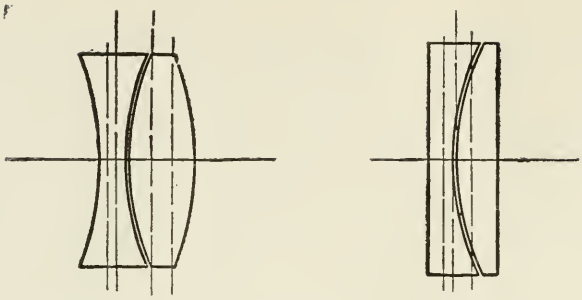
In all ophthalmic lenses which concern us these principal points are about one-third the thickness of the lens from each other. The separation of same can also easily be calculated by the formula:

$\Delta = t, \frac{n-1}{n} \Delta =$ the distance between the two principal points on the axis of the lens, t equals the thickness of the lens at its center and n the refractive index of the glass. In bi-convex and bi-concave lenses the principal points lie within the lens, but with lenses unsymmetrical in their form, like meniscus lenses, for instance, matters are quite different.

We show in the next diagram ophthalmic lenses as they are now in use, and from which you will notice that they largely differ in

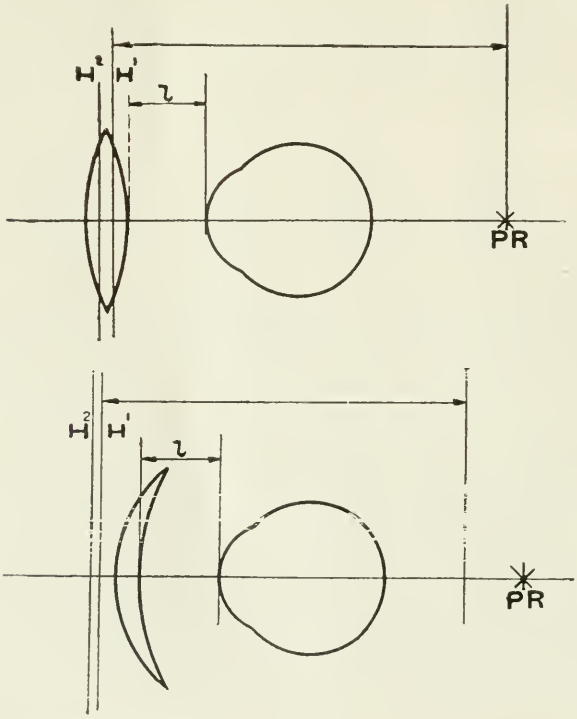


shape. The principal points belonging to these differently-shaped lenses are indicated, and you will observe that these principal points always shift toward the surface of greater curvature. In the deep meniscus lenses they are found more or less outside the lens; in the plano convex one is on the convex side, while the other is within the lens; in the bi-convex both principal points are within the lens. In the negative forms we find that the principal points behave likewise. They are displaced toward the surface of greater curvature, and with the plano-concave lense the one principal point is on the concave surface, while the other is within the lens; hence the plano-concave and the plano-convex lenses can be neutralized by bringing the same in contact so that the principal points on the curved surfaces coincide. In our next diagram we will show how this is accomplished, and at the same time you will observe the impossibility of neutralizing any of the other forms in this manner, since



the principal points cannot be made to coincide and neutralization is not possible without altering the power of the one or the other component. We learn from this that our neutralizing present method is impracticable, and we now observe what influence these principal points have on the position of the focal point when compared with the position of the lens itself.

In the next diagram we see three positive and three negative lenses of different shapes but of equal dioptric numbers. The lenses are arranged with the vertex facing the eye, in one plane. The position of the principal points, consequently, will appear at different planes in relation to which the focal points will also be at different positions.



This established fact will show us the importance of the principal points and their position in relation to the lens when determining the correcting power of an ophthalmic lens in a given position from the eye.

An ametropic eye is corrected when the ophthalmic lens images the object in the punctum remotum. In our next diagram we see an eye corrected with a bi-convex lens, the vertex of the lens surface next to the eye being at a distance l from the apex of the cornea and the lens images the object in the punctum remotum. The second diagram shows us a positive meniscus of the same dioptric power as the bi-convex lens and at the same distance l from the eye, but since with this type of lens the back focal point is much nearer to the lens itself, owing to the principal points being outside in front of the lens, the image of the object will lie in front of the punctum remotum and the eye is over-corrected.

You will observe from this that there must be something wrong with our theory, and Prof. Von Rohr was the first who realized that it is the back focus of the lens measured from the vertex of the surface facing the eye, and not the power (dioptre) of the lens, which is of importance, for the proper correction of an ametroptic eye.

Further, with the present dioptric system the thickness of the lens is often neglected, and we will see from the formula we give herewith what influence this thickness has on the power of a lens with given curvatures. Formula $D_1 + D_2 - \frac{d}{n} . D_1 . D_2 = D$ 5.98.

D_1 being the front surface of a +6 D lens, D_2 the back surface, d the thickness of the lens 0.0034 m. at its center, n the refractive index, say 1.50, of the glass material.

The same lens with the thickness of 0.0054 m. will give us D 5.967, with the meniscus D_1, +12, and D_2, −6, d .0034 m., and n 1.50, we will find D to be 6.163, and with the same lens but with the thickness of 0.0054 m., D will be 6.259. We have here four different powers of lenses supposed to be +6D, but actually differing more than 1/5D. This again will show us the inconsistency of our present dioptric system. Notwithstanding a good many requests are made to ophthalmic lens manufacturers to furnish lenses in eighths of dioptries.

Prof. Von Rohr, therefore, proposes *to measure all ophthalmic lenses, of whatever thickness, shape or form, from the focal point to the vertex of the surface of the lens facing the eye, and not to the principal point, as done at present, in order* TO DETERMINE THE REFRACTIVE POWER. The measurement obtained from the surface of the lens facing the eye to the focal point is then related to the meter lens in the usual manner, and in order to avoid confusion he uses the symbol D_v (vertex refraction) as a distinction of lenses measured in this manner from those designated in ordinary dioptries. Comparing, now, the actual dioptric power of an ordinary trial case lens, for instance, and the vertex refraction of a Punktal

lens, we find that vertex refraction in Punktal lenses and dioptries in trial case lenses hardly differ in their correction value, since the focus of a trial case lens measured from the principal point to the focal point in comparison with a meniscus lens designated in vertex refraction (the focal measurement is taken from the vertex of the surface facing the eye to the focal point) will only differ by one third the thickness of a trial case lens at its center, and will therefore be a negligible factor.

The vertex refraction of a lens can also be found by the formula:

$$D_v = D \frac{1}{1 - D_1 \frac{d}{n}}$$

or it could be readily measured with an instrument specially constructed for the purpose, and which I will now explain.

The Vertex Refraction Measure consists of a base with a double sliding device on which a target with luminous cross is mounted. A scale is provided for each slider, the first scale representing the refraction numbers of the spheres in the D_v system, and the scale of the second slider indicates the cylinders. On the one end of this base a telescope attachment is fitted with a stage to receive the ophthalmic lens to be measured. The eyepiece on the telescope tube is focusible for the purpose of bringing the cross lines in the telescope tube in proper focus and so correct the differences in the eyesight of observers. The telescope itself is a fixture. With the index of the scales in zero position the telescope, when no lens is on the stage, will show the luminous cross of target clearly defined. Measurements of ophthalmic lenses are now taken by simply placing the lens on the stage in such a position that the surface facing the eye in normal condition is pointed downwards. A slight pressure is now exerted in order to push the lens with stage toward a steel pin situated in a fixed position below stage surface until the lens comes in contact with this pin. Looking through the telescope the luminous cross appears now out of focus. With a spherical lens under test, the first slider is now moved to and fro until the image of the luminous cross appears sharply defined. The position of the index will then show at once the vertex refraction of the lens thus tested. The scale on the first slider reaches up to 10 D_v for either plus or minus, and if a lens of a higher power than 10 D_v is to be measured, a plus or minus lens of 10 D_v is then brought into play, according to whether the lens to be measured is plus or minus. For the high power positive lenses thus measured the auxiliary lens is a negative of 10 D_v, and for the negative power to be measured the auxiliary lens will be a positive of 10 D_v. These auxiliary lenses are mounted in an adapter below the stage, and can be brought readily into play. If the cylinder of a toric lens is to be measured, the first slider, after having focused for the spherical power, the horizontal line of the luminous cross, is to be clamped and the second slider brought in action to focus the vertical line of the luminous cross; the reading on the second scale will then represent the cylinder. The cross

in the target is illuminated by means of a small electric lamp, and for the purpose of precise focusing a glass disc is fitted to the telescope tube, having one-half of the field colored red and the other half green, so that when the rays of light passing through these two halves are perfectly united, a tint of the complimentary color is obtained. A special device for fine focusing is also fitted to the sliders, so that the adjustment can be made with the greatest precision. For the purpose of measuring the position of the axis of a cylinder, the target device with luminous cross is provided with a graduated collar with index, and so arranged that it can be revolved.

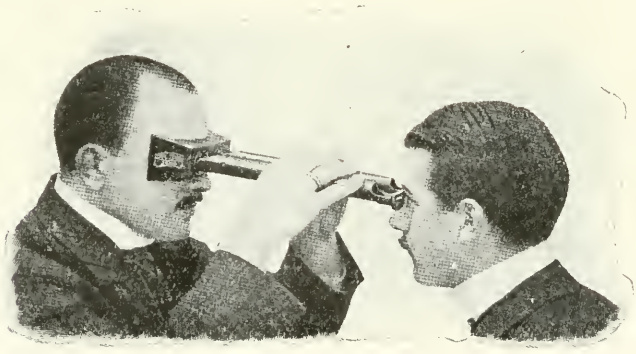
Ophthalmic lenses designated in vertex refraction could be readily interchanged with any kind of ophthalmic lens, since the trial case lenses, or ordinary, periscopic, meniscus, toric, Punktal or Katral lenses, if all named according to vertex refraction, will furnish equal correction to the eye, provided their numbers in vertex refraction are alike. We see from this that our present trial cases and ophthalmic lenses of the old or new form designated in dioptries need not be abandoned, since their dioptric power can easily be converted in vertex refraction, and *for which reason we already published a table* from which we can find the vertex refraction of any old or new forms of ophthalmic lenses designated in the ordinary dioptric numbers, or we simply measure the ordinary trial case lens or combination of lenses, as the case may be, with the vertex refraction measure, and are then in a position to furnish a patient with any of the various forms of lenses of the same number in vertex refraction as the trial case lens or lenses thus measured.

To simplify matters, trial cases with lenses marked in vertex refraction and a suitable trial frame will be made by the Bausch & Lomb Optical Co.

Punktal and Katral lenses, as we have seen, are corrected for a distance of 12 mm. from the vertex of the lens to the apex of the cornea, and when placed at other distances an allowance is to be made.

To measure this distance on the patient the Bausch & Lomb Optical Co. has made a small instrument as designed by Carl Zeiss, called the "Keratometer," which we shall see in the next slide.

The application of this instrument you will see from the diagram; same is placed at right angles to the line of sight of the patient and the scale in millimeters on the end of the instrument near the temple of the patient will be seen, together with the profile of his eye when looking through the lens situated on the other end of the tube. The instrument allows for a very large field of view, so that the profile of the eye, together with the spectacle frame, appears equally sharp and free from parallax. The measurement can be carried out by simply bringing the zero line of the scale coincident with the apex of the cornea and then read the nearest line of the scale to the vertex of the spectacle lens; if a meniscus, measure to the inner edge of the lens and add the distance from the edge of the lens to the center of the inner surface to the measurement, when the total will represent the distance of the vertex of the spectacle lens to the apex of the cornea. With a bi-convex lens the measurement from vertex of inner surface to the cornea can be made direct. With Punktal and Katral lenses a table has been made to show the depth of curvature for all diameters.



The next diagram will show us another useful instrument, "The Interpupillary Gauge." This instrument is so arranged that it can be placed on the bridge of the nose of the patient.

As you will see from the diagram, two tubes are arranged parallel to each other, having two scales at the end of each tube next to the eye of the patient, while on the other end of the tubes a screen is provided so that the observer is protected against any stray light. The application of this instrument is to rest same with the end piece bearing the scales on the bridge of the nose of the patient. When looking through the tubes the observer will see the eye of the patient between the two scales, which are graduated in such a manner that the one scale represents the distance in millimeters from the center of the bridge of the nose to the pupil, for reading distance, while the other scale represents the distance in millimeters from the center of the bridge of the nose to the center of the pupil, for distant vision.

In order to keep the eye of the patient steady, a white mark is

provided for on the outer surface of the screen central with the axis of the tube through which the eye is looking, and the patient is then directed to observe that white mark. A shutter is provided for, manipulated by a pin in the middle of the instrument, and which shutter serves the purpose to close one tube at a time, so that if the right eye is measured the aperture of the tube in front of the left eye is closed, and when observing the left eye the shutter is pushed over by means of the pin opening the aperture for the left eye and closing the aperture of the tube in front of the right eye. This instrument should prove to be most useful in ascertaining the correct measurement of a frame chiefly when the eyes of the patient are not at equal distances from the center of the nose.

SOME IMPRESSIONS OF EASTERN KENTUCKY AND THE TRACHOMA PROBLEM IN THAT REGION.

By Herbert Harlan, A.M., M.D.
Baltimore, Md.

I WAS not in Eastern Kentucky a sufficiently long time to establish intimate personal friendships with the natives as I had previously done in North Carolina, but when I arrived in Perry, Knott and Floyd counties I took a look around and found, as it were, that I was seeing through my North Carolina spectacles. The people were very similar—kind-hearted, hospitable, suspicious of strangers, diffident, sensitive to a degree, and yet very independent and self- reliant. The halo of romance painted by various novelists around the Kentucky mountaineers was not apparent to me. The peculiarities of the people seem to me entirely due to their remoteness from so-called civilization.

There are few opportunities for any kind of social or religious gatherings. There is so little arable land that I do not see how it is possible to raise sufficient food. Poverty is the keynote, carrying with it inability to build roads and schoolhouses.

Whether the first cases of trachoma were brought into this country by the original settlers, or whether it was introduced at the close of the Civil War, or came from some other source, is interesting, but cannot be determined; that it affects a good many thousands of people and how it is or may be readily communicated is not so difficult to understand.

Among a large number of poor people with whom general personal bathing is seldom if ever indulged in, it is the universal custom to wash hands and usually face before meals, a piece of soap and a tin basin, with water supplied by means of a bucket and a dipper, all placed in the neighborhood of the kitchen, are cheap and fairly abundant, but when it comes to the towels—"there is the

rub." Towels cost money, and one or two often supply the needs of a large family and all their guests.

It is difficult to see how any member of a family can escape infection should one member or an accidental guest be affected with acute trachoma.

The disease is a chronic one, and accompanied at first with very little personal discomfort and no interference with vision.

To eradicate in a short time a contagious disease which has such a foothold among people so widely scattered as are the inhabitants of these mountains is impossible. Given some time and some money, however, much can be done.

The people must be educated and the local doctors taught to recognize and treat the disease. I believe the best routine treatment to be a thorough grattage, followed by continued local treatment and then again partial grattage of the conjunctiva from time to time as may be necessary. With this treatment properly carried out, I am convinced that most cases can be cured, or nearly cured, in from three to six months.

In regard to the grattage operation, many older patients will be found with sufficient fortitude to stand it under local cocaine anesthesia, but general anesthesia is necessary with the timid, and is probably better in all cases.

For continued local treatment there is nothing I have found so good as a solution of Sulphate of Copper. This is put up in Glycerine, about a dram to an ounce, and a small quantity of this is given to the patient and he is instructed to put one drop of the solution in from 15 to 20 drops of water, a few drops of this to be put into the eyes several times a day. The eye drops to be made fresh from the Glycerine Copper solution each time they are used.

Patients can be operated on at certain centers, and can then be given treatment to be carried out at home, with instructions to return to these various centers for observation at intervals of three or four weeks, as the case may seem to require.

Of course, this plan will perhaps seem somewhat slow, and money must be supplied from some source, if not by the richer and more fortunate portions of Kentucky, then from outside sources, as is now being done by the United States Public Health Service.

Most wonderful work, in an educational way, is being done by the industrial schools which have been established in various places. Not only is the coming generation helped, but the children returning to their homes convey to their families the knowledge of better ways of living.

The W. C. T. U. School at Hindman is doing most efficient missionary work, is to be highly commended, and all schools of that class should be most liberally supported by charitably-disposed individuals.

The United States Public Health Service has taken up the trachoma work, and has Dr. John McMullen, well known to many of you, in charge, with headquarters at Lexington. From this point

he visits at frequent intervals and superintends after having established a number of small local hospitals. At this time there are in operation three hospitals—one at Hyden, in Leslie county; one at Hindman, Knott county, and one at Jackson, Breathitt county, and is about to establish one in south West Virginia.

Each of these hospitals has a resident physician and two trained nurses. They will accommodate 15 or 20 patients only, but the resident physicians treat all that come to them as outside patients.

In a recent letter Dr. McMullen wrote me that in the month of February the Hindman Hospital treated more than 100 hospital cases, while the total attendance at the hospital was about 600, and there were 90 operations performed.

Now, Hindman, though the county-seat, has only about 300 people, and the county 10,790. It is evident the patients were drawn from considerable distances.

I believe the trachoma problem is in the process of solution.

Book Reviews.

A MANUAL OF THE DISEASES OF INFANTS AND CHILDREN. By John Ruhrah, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Illustrated. Fourth edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. Cloth, $2.50 net. 1914.

For those who desire the pith of affections peculiar to children, no better book can be procured than Ruhrah's. It is written by an expert with many years' experience as a teacher. It contains the real meat of the cocoanut, and is devoid of the frills and fancies of the larger textbooks. If the former editions have proven useful, the present should prove more so, as the additions and removals bring it as nearly up to date as is possible with a textbook. It will be found particularly useful as a student and general practitioner reference book, being small, but sufficiently fulsome for all practical purposes. Those procuring it will find it a well-balanced book in every feature.

THE TUBERCULOSIS NURSE. By Ellen N. La Motte, R. N., Graduate of Johns Hopkins Hospital. Former Nurse-in-Chief of the Tuberculosis Division, Health Department of Baltmore. Introduction by Louis Hamman, M.D., Physician-in-Charge Phipps' Tuberculosis Dispensary, Johns Hopkins Hospital. New York and London: G. P. Putnam's Sons. 1915. Cloth, $1.50 net.

As in everything else undertaken by Miss La Motte, so in the case of this book—thoroughness and mastery of the subject is self-evident. From the standpoint of a nurse, the ground could not be covered more completely. No feature of tuberculosis, as it concerns the nurse, is overlooked; therefore, it should prove

generally useful to nurses, social workers and pupil nurses in a better grasp of tuberculosis as it affects the nursing profession. The increase in tuberculosis, and the menace of the tubercular to his neighbor, renders it necessary that the nurse of today should be well informed in the methods of nursing these patients, and especially the methods used in the prevention of the spread of the malady. Miss La Motte's work, as head of the Tuberculosis Division of the Health Department of Baltimore, renders her particularly well fitted to speak authoritatively upon the subject, and it gives us great pleasure to subscribe our approbation to the finesse with which she has accomplished her task.

A Compend of Obstetrics. Especially Adapted to the Use of Medical Students and Physicians. By Henry G. Landis, A.M., M.D., Late Professor of Obstetrics and Diseases of Women in Starling Medical College. Revised and Edited by William H. Wells, M.D., Assistant Professor of Obstetrics in the Jefferson Medical College, Philadelphia; Assistant Obstetrician in the Maternity Department of the Jefferson Medical College Hospital; Formerly Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Fellow of the College of Physicians; Member of the Obstetrical Society, etc. Ninth Edition. Illustrated. Philadelphia: P. Blakiston's Sons and Company. 1915. Cloth, $1.00 net.

Unlike most compends this one enters a little more thoroughly into the various phases of the science and art of obstetrics. Whilst not sufficiently full for special reference purposes, still it is complete enough when used in conjunction with class-room notes to answer as a general reference book. The material is, in the main, in accord with the notions of the day, making it an especially useful book in brushing up for State board and other examinations.

The Tonsils, Faucial, Lingual and Pharyngeal, With Some Account of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M.D., Instructor in Laryngology Harvard Medical School; Surgeon in the Department for Diseases of the Nose and Throat, Boston Dispensary; Assistant Laryngologist Massachusetts General Hospital; Member New England Laryngological and Otological Society; Member American Laryngological, Rhinological and Otological Society. Illustrated. St. Louis: C. V. Mosby Company. 1914. Cloth, $3 net.

As the tonsil is the ash-pile for most bodily ills not referable to other organs, the profession is indeed fortunate to be the recipient of a book so faithfully portraying its anatomy, physiology, symptomatology and treatment. The views expressed by the author are moderate and in accord with the modern conception of laryngologists. Every thoughtful laryngologist is certainly of the same opinion as expressed by the author, viz., the tonsils are important

physiological organs during childhood; they should never be removed without cause; when such exists, their function is either permanently impaired or is easily taken up by the other lymphoid tissues. There should, therefore, be no hesitation on that score in totally removing diseased tonsils. Laryngologists are entirely in accord with the author's statement. Tonsillotomy is entirely inadequate in those cases in which the symptoms depend upon absorption from the crypts. The description of the operative technic of tonsillectomy is lucid, abundantly full and excellently illustrated. Those engaged in tonsillar work should by all means possess the volume. They will find it helpful on more occasions than one.

Medical Electricity, Roentgen Rays and Radium. With a Practical Chapter on Phototherapy. By Sinclair Tousey, A.M., M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Second Edition, Thoroughly Revised and Greatly Enlarged. Containing 798 Practical Illustrations, 16 in Colors. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. 1915. Cloth, $7.50 net.

Those looking for reliable information on medical electricity can do no better than by consulting Tousey's book on Medical Electricity. Static electricity, dynamicelectricity, physiological effects of electricity, electropathology, electrodes, electrodiagnosis, ionic medication by electrolysis, electricity in diseases of the nervous system, high-frequency currents, phototherapy, the X-ray, radium, etc., are thoroughly but not too fulsomely covered. This edition of Tousey's makes it the last word on the subject, so that student or practitioner who desires a trustworthy reference book on medical electricity can get it here. Though not a manual, still it is deleted of overly scientific materials so as to render its material intelligible to the average reader. It gives us great pleasure to put our stamp of approval upon so meritorious a work.

Pathological Technic. By Frank Burr Mallory, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School; Pathologist to the Boston City Hospital. And James Homer Wright, A.M., MD., S.D., Pathologist to the Massachusetts General Hospital; Assistant Professor of Pathology, Harvard University Medical School. Sixth edition. Revised and enlarged. With 174 illustrations. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. Cloth, $3 net. 1915.

Mallory and Wright's Pathological Technic needs no commendation from the reviewer. It has long since proven its utility and reliability. In fact, so much so that it has now become a standard work. As a reliable exposition of the present status of pathological technic, no better work can be found for student pur-

poses. It is well written, moderate in tone, fully illustrated and, as far as possible, devoid of debatable questions. Amongst the new inserts are descriptions of Bielschowsky's silver impregnation stain for nerve fibers and for connective tissue fibrils and reticulum, Bensley's methods for the demonstration of mitochondria and other cytoplasmic granules, the complement fixation test for gonorrhoeal infection, Lange's colloidal gold test for syphilis of the central nervous system, etc. Those using the present edition will find it fully up to the standard of its predecessors. It is therefore with great pleasure that we can thoroughly recommend it to our readers.

Clinical Diagnosis. A Manual of Laboratory Methods. By James Campbell Todd, Ph.B., M.D., Professor of Pathology, University of Colorado. Illustrated. Third Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. 1914. Cloth, $2.50 net.

This manual is of sufficient scope to meet the demands of medical students and the needs of the general practitioner. It covers the field of laboratory diagnostics well and sufficiently thoroughly. To each subject treated enough space is allotted to intelligently present the discussion to the reader. Included in the contents are chapters on serodiagnostic methods, the urease methods for urea in urine, blood and spinal fluid, Volhard method for chlorides in urine, etc. If one is looking for a clear and concise presentation of the more important of the laboratory methods, it is to be found here.

Diagnostic and Therapeutic Technic. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, A.B., M.D., Clinical Professor of Surgery in the New York Polyclinic; Attending Surgeon to the Workhouse Hospital and to the Central and Neurological Hospital. With 860 Illustrations, Mostly Original. Second Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Company. 1915. $5 net.

The above book is a high-grade minor surgery. It goes thoroughly into those little details in the diagnosis and treatment of such conditions as transfusion of blood, infusion of normal salt solution, acupuncture, venesection, scarification, cupping, leeching, vaccination, administration of salvarsan, the treatment of neuralgia by injections, Bier's hyperemic treatment, exploratory punctures, etc. It deals principally with subjects which are thought too insignificant by the general text-book, subjects which most authors erroneously suppose the student and inexperienced doctor acquire spontaneously. The student is sufficiently well drilled in the major principles of surgery, but such a little procedure as

cupping, for instance, is passed over in silence by the instructor. It is, therefore, well that the present book has been presented the profession, as it supplies them under one cover many little details which they would find trouble in getting elsewhere.

The Principles of Hygiene. A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M., M.D., First Assistant, Laboratory of Hygiene, and Assistant Professor of Bacteriology, University of Pennsylvania. Illustrated. Fifth Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. 1915. Cloth, $3 net.

Those subjects which are peculiar to the branch of hygiene are treated in the above-mentioned book, namely, air, ventilation, heating, water and water supply, the removal and disposal of sewage, garbage disposal, food and dieting, clothing, exercise, personal hygiene, school hygiene, soil, etc. As heretofore, those who must consult a book of this character will find this one sufficiently modern, concise and practical to meet their most exacting demands. It is well illustrated, and contains the latest developments of the subject. Hygiene is ever receiving greater and greater attention from the profession, for it realizes that prevention of sickness is more desirable than cure. Therefore a book which contains the underlying principles upon which the subject is based, especially if in an attractive form, should be sought after. The Principles of Hygiene, by Bergey, meets these conditions. It is therefore with great pleasure that we recommend it to our readers.

A Textbook of Histology. By Rudolph Krause, A. O. Professor of Anatomy at the University of Berlin. Translated from an original manuscript and printed only in the English language. With 36 illustrations in the text, three of which are colored. The references to illustrations given in the text relate to the colored illustrations contained and published in Dr. Rudolph Krause's "A Course in Normal Histology." New York: Rebman Company. 1915. Cloth. $2.50 net.

Nothing better in the way of a histology has come to our notice for many a day. It is absolutely modern and contains the last word on histology. The treatment of the subject is ideal, being divided into the natural divisions of cell, tissue and organs, for, after all, the body is composed of a mass of cells, which cells go to form the tissues, and in a more differentiated form the organs. The illustrations are excellent and the contents clear, brief and to the point. It is a book which should be possessed by every American student, for its description of the minute anatomy of the body is so clear that it is bound to get them started on the study of medicine with the right idea, namely, histology is the foundation of a proper understanding of anatomy, physiology and pathology.

MARYLAND MEDICAL JOURNAL

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BALTIMORE, NOVEMBER, 1915

LIMITATION OF OFFSPRING.

SINCE the introduction of eugenics into medical discussion there has been waging a constant war between the advocates and opponents of limitation of offspring. Strong arguments both pro and con have been advanced by one side or the other. Those against claim that it is criminal for human agents to interfere with the course of nature; those for make the reply that it is criminal to bring undesirables into the world. It is, therefore, high time that some solution of the problem be arrived at. Unquestionably the ultra-rich class has become wise as to the methods for the prevention of conception. The women of this class do not desire the annoyances necessarily incident to the rearing of a family. They desire leisure to pursue their idle foibles. Surely it seems inherently wrong for those who are able to give their offspring all of the advantages of life to checkmate the mandates of nature. But there is another side to the question, namely, the introduction into the world of large numbers by the hopelessly poor. These children start out with practically no chance at all, only a very small proportion of the children of this class is ever able to surmount the obstacles of civilization and improve their condition. In most cases the child is ushered into the world improperly nourished, with no prospect of ever getting the sort of food which is necessary to the production of a healthy mind and body. At a very tender age he is compelled to enter the ranks of the workers, after which it is im-

possible for him to acquire the proper education for advancement. His only prospect in life is to serve the upper classes. In fact, from the day of his birth he is doomed as the chattel of the rich. Unskilled and improperly educated, he must take whatever work he can obtain, and at the price of the employer. From the nature of things he is a detriment to his country. Raised in vicious surroundings, he is extremely liable from example and inclination to resort to undesirable practices to gain a miserable existence. But what else can we expect? Surely nothing. He goes to recruit the insane asylums, the jails, the penitentiaries, and the almshouses. This is the penalty he has to pay for his begetting. Therefore, all this hue and cry about the falling off of the birth-rate is more or less alarmist in nature. The world can supply food for only a definite number of people. When that number is exceeded, someone must go hungry. Is it not better, then, that people be taught the ordinary means for the prevention of pregnancy rather than bring into the world an army of undesirables, which is of no advantage from a moral, pecuniary or ethical viewpoint to the nation or to themselves? Far better to any nation is a reasonable number of healthy, vigorous citizens than a host of weaklings both physically and mentally. If every child born into the world could be assured of a reasonable chance of building up a healthy body and mind, then there would be some reason for the wail of the lessened birth-rate howler. But such is not the case, and under present conditions cannot be the case. The prospect of an improper start in life and a constant struggle for the bare necessities of life is justification enough for the parents of this class to endeavor to prevent conception. Bear in mind, there is a distinct difference between the prevention of conception and the production of abortion. One is as different from the other as night from day. It should be the aim of the commonwealth to disseminate any knowledge which teaches limitation of offspring by the prevention of conception rather than to make it a criminal offense. Modern thought is trending toward fewer but better babies, and the sooner the better for all parties concerned—the family, the city, the State, the nation.

Medical Items.

Dr. Harry Lyman Whittle announces the opening of his office, laboratory and operating-rooms for diagnosis, study and treatment of diseases of infancy and childhood at 5 E. Mt. Royal avenue. Consultation hours, 3 to 5 and by appointment. Telephone, Mt. Vernon 756.

During the month of September 189 new cases of typhoid fever were reported, with 22 deaths, as against 130 cases during September, 1914.

Senior Surgeon Henry R. Carter, U. S. P. H. S., in charge of the Marine Hospital at Baltimore, has been detailed by Surgeon-General Rupert Blue to co-operate with the State Board of Health in stamping out malaria in Virginia.

Suits amounting to $15,000, brought against Dr. Alexander E. Muse, in which damages were claimed for injuries alleged to have been sustained by a 3-year-old boy who was struck by an automobile belonging to Dr. Muse, were decided in favor of the physician October 1, as the fact was established that the automobile was being driven by a colored man without permission from Dr. Muse.

Dr. William F. Lockwood, formerly dean of the College of Physicians and Surgeons, has been chosen dean of the School of Medicine of the University of Maryland to fill the vacancy caused by the death of Dr. R. Dorsey Coale. Dr. Lockwood is a graduate of that school and professor of medicine in it.

Dr. B. Merrill Hopkinson, professor of oral hygiene in the University of Maryland, delivered the introductory address to the students of the several classes.

Dr. John D. Blake of 1014 W. Lafayette avenue has been appointed Health Commissioner of Baltimore, to succeed Dr. Nathan R. Gorter, resigned.

Dr. Nathan R. Gorter, former Health Commissioner of Baltimore, has qualified as a member of the State Board of Health, to which he was appointed by the Governor soon after his successor as Health Commissioner was named by the Mayor.

Dr. C. Hampson Jones, Assistant Health Commissioner of Baltimore City for 20 years, has been appointed chief of the bureau of communicable diseases in the State Health Department by the State Board of Health. He will take charge of the bureau November 1.

As a means of showing its appreciation of the 20 years' services of Dr. C. Hampson Jones as a public health official of Baltimore City, the medical profession is planning to present him with a fitting testimonial.

At a meeting of physicians recently held at the Medical Library, a movement was started for the organizing of the Physicians' Civic Club, the object being to familiarize physicians with the city government and other subjects of interest to them. Dr. William T. Watson was elected temporary chairman and Dr. Frederic V. Bietler temporary secretary. The chairman was authorized to appoint two committees —one to draft a constitution and by-laws and the other to nominate officers.

Dr. William H. Welch, a member of the Rockefeller Medical Mission, who is on his way to China, has reached Tokyo, Japan, where he, with the other members of the mission, were entertained by the Japanese Premier.

Dr. Robert H. Crawford has returned after several months' duty with the Red Cross unit in Galicia.

The first fall meeting of the board of Johns Hopkins Hospital was held October 2 in the hospital board room.

The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Westminster, October 28.

Dr. Samuel J. Fort has been appointed an inspector to the State Bureau of Statistics and Child Labor. He succeeds Dr. John C. Travers.

Dr. Mary R. Fleming, a medical missionary of the Presbyterian Church, has arrived at Tabriz, Persia. She is a graduate of the Johns Hopkins Medical School, and at Tabriz will be physician and surgeon in charge of the hospital for women.

Dr. Francis W. Janney announces the removal of his offices from 327 N. Charles street to the Bowen & King Building, 405 N. Charles street. His practice is limited to the eye, ear, nose and throat. Consultation hours, week days, 9 A. M. to 1 P. M.

Dr. George W. Dobbin and Dr. John McF. Bergland desire to announce that they have

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formed a partnership for the practice of obstetric surgery, with offices at 56 W. Biddle street. Consultation hours, 10 to 12 A. M. daily, except Sunday, and by appointment.

ENGAGEMENT

The engagement is announced of Alex. McC. Stevens, M.D., Johns Hopkins Medical School, '11, to Miss Meta Goldsborough Tharp, both of Easton, Md. The wedding will take place the early part of January. Dr. Stevens is at present a deputy State health officer, with headquarters in Salisbury, Md.

MARRIAGES.

Eugene Bascom Wright, M.D., University of Maryland Medical School, '09, formerly of 1017 Cathedral street, to Miss Elsie Everett Daub of Baltimore, formerly of Wheeling, W. Va., at Philadelphia, September 11, 1915. Dr. Wright was resident physician at the Church Home and Infirmary for three years, and resident surgeon at the Hebrew Hospital.

J. Holmes Smith, Jr., M.D., U. S. P. H. S., formerly of 37 W. Preston street, Baltimore, to Miss Mildred Clara Oliver of New Orleans, La., at New Orleans, September 22, 1915. Dr. Smith was formerly associated with the anatomical department of the University of Maryland.

Edward Lingen Bowlus, M.D., University of Maryland Medical School, '06, of Middletown, Md., to Miss Georgia Martin Potter of Baltimore, Md., at Baltimore, October 6, 1915. Dr. and Mrs. Bowlus will reside in Middletown.

DEATHS.

C. H. Fultz, M.D., College of Physicians and Surgeons, '07, of Vanceburg, Ky., died at his home September 3, 1915, aged 39 years.

William Dudley James, M.D., University of Maryland Medical School, '81, a practitioner of East Brady, Pa., died at the Kittanning (Pa.) Hospital, August 14, 1915, from cirrhosis of the liver, aged 55 years.

Luther H. Keller, M.D., College of Physicians and Surgeons, '75, of Hagerstown, Md., a Fellow of the American Medical Association; a specialist on diseases of the ear, nose and throat, died in the Washington County Hospital, Hagerstown, September 30, 1915, from heart disease, aged 63 years.

Orson Pope Kingsley, M.D., Baltimore Medical College, '07, of Brush, Colo., a veteran of the Spanish-American War, with service in the Philippines, died in a hospital in Denver, September 23, 1915, aged 36 years.

Ithamar Davisson, M.D., Baltimore Medical College, '93; College of Physicians and Surgeons, '10, died at his home in Flemington, W. Va., July 4, 1915, from cerebral hemorrhage, aged 60 years.

Charles C. Taggart, M.D., University of Maryland Medical School, '87, died at his home in Marshfield, Ore., September 11, 1915, aged 49 years.

F. W. Max Klonk, M.D., Baltimore Medical College, '94, died at his home in Oakland, Cal., October 2, 1915, aged 63 years.

John Dickson, M.D., University of Maryland Medical School, '52, for many years a practitioner of Baltimore, but for the last 25 years a resident of California, died at his home in San Francisco, September 15, 1915, from senile debility, aged 84 years.

William T. Boyd (license, Maryland) of Upper Falls, Md., died at the home of his father in Lebanon, Pa., from disease of the lungs, September 14, 1915, aged 55 years.

Thomas H. Collins, M.D., Baltimore University, '03, milk inspector of Lawrence, Mass., died at his home in Lawrence, April 7, 1915, from sarcoma of the stomach, aged 35 years.

Garland E. Huddle, M.D., Baltimore University, '92, a member of the Kentucky State Medical Association, for several years health officer of Bowling Green, Ky., died at his home in Bowling Green, August 3, 1915, from nephritis, aged 44 years.

Martin Bernard Roddy, M.D., Baltimore Medical College, '09, a fellow of the American Medical Association and an esteemed practitioner of Lynn, Mass., died in the Lynn Hospital, August 12, 1915, two days after an operation for appendicitis, aged 29 years.

Silas Jones, M.D., University of Maryland Medical School, '75, died at his home in Galion, Ohio, August 12, 1915, from valvular heart disease, aged 60 years.

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WHAT WOMEN'S CLUBS AND NURSING ORGANIZATIONS CAN DO TO PREVENT BLINDNESS.

It is estimated that 50 per cent. of all blindness is preventable. This statement will be surprising to many—that one-half of the sightless people in this country need not have been blind had proper care been given to their eyes. But it has long been known by those endeavoring to prevent unnecessary blindness that more than a quarter of the pupils in the schools for the blind are sightless because their eyes were not properly treated during the first few days of life; that poor midwives are in part responsible for this tragedy; that children become totally or partially blind from neglected "sore" and "weak" eyes, and from neglect after attacks of such infectious diseases as measles, scarlet fever, etc.; that progressive nearsightedness among children may cause total or partial blindness if neglected; that household and industrial accidents cause the loss of many eyes; that drinking wood alcohol or inhaling its fumes in close places causes both blindness and death; that inadequate lighting and glaring surfaces are responsible for much visual disturbance, including eye-strain; and that eye-strain is a frequent cause of both mental and physical inefficiency.

Visiting nurse organizations and women's clubs, working independently, or, better still, together, can perform valuable service in the elimination of these causes, thereby saving babies, children and adults from lifelong blindness.

"BABIES' SORE EYES" (OPHTHALMIA NEONATORUM).

This disease, which causes so much blindness, is preventable, and, if taken in time, is curable.

The prevention of blindness from babies' sore eyes is accomplished through the routine use of 1 per cent. solution of silver nitrate, or some such prophylactic, in all infants' eyes immediately after birth, and by prompt and skilful treatment of babies' eyes when they become red, swollen and discharging, whether or not a prophylactic has been used.

1. Does the birth certificate used in your locality include the question, "What preventive did you use for ophthalmia neonatorum? If none, state the reason therefor?"
2. Are prophylactic outfits distributed gratuitously by your Health Officer to doctors and midwives?
3. Are doctors, midwives and parents required to report to the Health Officer, within six hours, redness, swelling or discharge from the eyes of infants in their care who are under three weeks of age?
4. Is this reporting law printed on the birth certificate—thus acting as a constant reminder?
5. Has the Department of Health a nurse in its employ, or does it so co-operate with a nursing organization that it may send a nurse at once to visit each reported case and secure adequate medical or hospital treatment for uncared-for patients?
6. Are there such hospital facilities for the care of babies' sore eyes that the Health Officer may send an infant to a hospital without delay if the eyes are in a serious condition?

Take these points up with your Health Officer, interested oculists and obstetricians, and don't rest until they are all attended to. Make it your business to see that any baby suffering from sore

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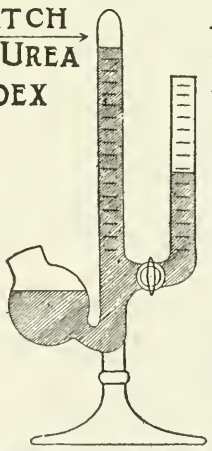
WATCH the UREA INDEX



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eyes, of which you have knowledge, is given prompt and adequate medical attention.

Try to have at least one nurse in the community for eye work exclusively, and see that there are hospital facilities for treatment of severe cases of babies' sore eyes.

MIDWIVES.

These women attend about half the births occurring in this country, and the majority of them are dirty, ignorant and generally unfit to assume the care of mothers and babies. Although the carelessness of many physicians is equally reprehensible, it is due in great measure to the ignorance and neglect on the part of midwives that many babies become blind from babies' sore eyes.

1. Are there midwives practising in your community?
2. Are they registered by an official body?
3. Is it required that they be adequately trained, pass an examination, obtain a license, and register before beginning to practice?
4. Has your community a midwife training school connected with a good hospital?
5. Do the practicing midwives give clean, careful nursing care to mother and child, and instruction to the mother concerning hygiene of pregnancy and care of her child?
6. Has the State or City Health Department adopted rules regulating midwives' practice in detail and requiring them to summon a physician in all but normal cases?
7. Are there inspectors to enforce the rules and give helpful advice to the midwives?

Make it your business to find out about this, for the sake of the mothers and babies. Your Board of Health is the proper body to have control of midwives. The Board of Education should regulate their training and licensure.

EYESIGHT OF SCHOOL CHILDREN.

Many normal children seem backward because they have sore eyes or defective vision. Failure to correct these defects will probably mean continued retardation for many of the children, and inability to reach their highest possible mental and physical development and economic efficiency. Continued neglect may result in partial or total blindness.

1. Are all classrooms in your schools adequately lighted?
2. Are the blackboards and tops of the desks lusterless?
3. Are all of the desks adjustable?
4. Are the children's eyes carefully and regularly examined for nearsightedness and other visual defects, and for various kinds of "sore" eyes?
5. Is this done by an oculist?
6. Are there clinics where school children with "sore" or "weak" eyes may be treated?
7. Is there provision for furnishing eyeglasses to indigent children who need them?
8. Are common towels allowed in your schools? (They spread eye diseases.)
9. Are the children taught how to take care of their eyes?

Improving the eyesight and general surroundings of school chil-

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dren will be of immediate benefit to them, and will increase their chances for enjoying health and prosperity later in life.

Talk to your Board of Education about this—it is important. The children can't do it themselves.

INDUSTRIAL ACCIDENTS.

Many good workmen are seriously handicapped and even become public charges as a result of losing one or both eyes in an accident that might have been prevented. Men, women and children often suffer from severe eye-strain because they are not provided with adequate light while at work.

1. Are workmen in the factories and shops in your locality protected from eye accidents by goggles, guards on emery wheels, screens to catch flying chips, guards on water gauges, etc.?
2. Are the factories, workshops and workrooms adequately lighted?
3. Are workmen examined to see that they are not especially liable to accidents because of defective vision?

Take these points up with your Department of Labor, Industrial Safety Commission, or some similar body.

The eyes are breadwinners and must be carefully guarded.

WOOD ALCOHOL.

Wood alcohol is a poison which may cause blindness or death if swallowed, or its fumes are inhaled in an inadequately ventilated place.

1. Have you a law forbidding wood alcohol to be sold in any form without a poison label and warning?
2. Is the use of wood alcohol absolutely forbidden in beverages, medicines and toilet preparations.
3. Are your druggists, paint and varnish dealers, liquor dealers, grocers and barbers prosecuted for failure to comply with the above restrictions?
4. Is wood alcohol used in any of your local industries? If so, are employers required to protect their workmen from poisoning by providing adequate ventilation?

Your Board of Pharmacy, Department of Labor, Health Department and Commissioner of Excise have jurisdiction in this matter. Find out what they are doing about it. In the meantime urge your druggists to give up the sale of wood alcohol, and urge your friends to use denatured alcohol instead. It is safer and cheaper than wood alcohol.

The National Committee for the Prevention of Blindness wants your help and co-operation in spreading the knowledge that much blindness is needless. It has data and information, lantern slides, exhibits and pamphlets on the various causes of unnecessary blindness and methods of prevention, and it is glad to share these with workers in all parts of the country.

In order to accomplish the ends suggested in the foregoing program it is necessary to have official action, supported by public opinion. Try to have at least one big popular meeting annually under the joint auspices of the local medical society, the Health Officer, Superintendent of Schools, Y. M. C. A., women's clubs, nursing organizations and relief agencies. Arrange for talks before school children, mothers' clubs, etc., and secure as much

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Employed with conspicuous success in congestive and convulsive conditions, the reflex neuroses, and whenever a reliable antispasmodic, anodyne, and sedative is required.

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A trustworthy gastric tonic.

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newspaper publicity as possible. Write to the National Committee for suggestions and assistance.

The educational work must be sustained—the effort unremitting.

Ella L. Blair, Chairman, Public Health Department, General Federation of Women's Clubs.

Carolyn C. Van Blarcom, Chairman, Committee on Prevention of Blindness and Midwives, National Organization for Public Health Nursing; Secretary, National Committee for the Prevention of Blindness, 130 East 22d street, New York City.

Abstracts.

STRICTURE OF THE URETHRA III.*

Henry H. Morton, M.D.,

Clinical Professor of Genito-Urinary Diseases in the Long Island College Hospital; Genito-Urinary Surgeon to Long Island College and Kings County Hospitals and the Polhemus Memorial Clinic, etc., Brooklyn, N. Y.

In making a diagnosis of stricture we cannot tell anything from the history. It simply tells us that the man has an obstruction in his urethra which may be stone, prostate, or stricture. The diagnosis is made by examination, and the flexible bulbous bougie is the best instrument for this purpose. A steel sound is too inexact, as the sound passes through the stricture, gradually dilating it, whereas a bulbous bougie, on being withdrawn, catches on the stricture band, and a sensation as if passing over a fiddle string is felt.

All soft and recent strictures are treated by dilation, and many organized strictures may be treated in this way.

For dilation two instruments are used: 1. Sounds. 2. Dilators.

The effects of dilation are that mechanical stretching and small tears take place in the substance of the stricture, under the mucous membrane, blood supply is increased and absorption is favored.

By repeated dilations the character of the tissue is changed from a live scar, which would contract, to a dead scar, which has little or no tendency to contract.

In all cases begin with sounds, using one large enough to just stretch the stricture. Massage of the urethra over the sound gives beneficial effects of massage as well as dilation. Sounds should be passed about once a week.

After a full-sized sound no longer dilates the stricture we use a dilator, increasing one or two points at each sitting, followed by an irrigation with silver nitrate 1-4000.

Severe bleeding means too much dilation and patient should have two weeks' rest.

False passages are made by pushing the end of sound into the periurethral tissues.

In very tight strictures a filiform guide should be passed and a tunneled sound threaded over it and passed into bladder.

If stricture is so tight no sound can be passed, the guide may be left in for 24 hours, causing superficial ulceration; then a flexible bougie is passed and left in for 24 hours. This is continued, using

*Abstract of Clinical Lecture given in the Long Island College Hospital.

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a larger bougie each time, till a sound can be passed. This method is not in common use today.

False passage, or in very tight, heavy, dense, tortuous strictures immediate external urethrotomy is indicated.

32 Schermerhorn street, Brooklyn, N. Y.

THE AMBULANCE CONSTRUCTION COMMISSION.

This is the first great war in which field motor ambulances have been extensively used. It was inevitable that many defects should be found in existing types, and in various quarters experts began to ask whether something could not be done to standardize the patterns and to improve the type. At the instance of Mr. Henry S. Wellcome, the founder of the Wellcome Bureau of Scientific Research, a commission has been formed, and the names of members show at once that the matter is regarded as of first importance by those most intimately connected with the welfare of the wounded soldier.

Sir Frederick Treves, whose long experience and distinguished service specially fit him for the task, has consented to be the chairman. The Admiralty is represented by the Director-General of the Medical Department, R. N., while the Quartermaster-General to the Forces and the Acting Director-General, Army Medical Service, represent the War Office. The British Red Cross Society is, of course, represented by Sir Frederick Treves, and the St. John Ambulance Association by Sir Claude Macdonald and Sir John Furley. The remaining members are all experts. This commission will first and foremost act as a judging committee for the award of prizes of the value of £2000 provided by the Wellcome Bureau of Scientific Research. These prizes are offered for the best designs of an ambulance body which shall fit a standard pattern motor chassis for field motor ambulances. The last day for the receipt of competing designs is June 30, 1915. It is hoped that the competition will bring in a number of ingenious designs, from which the ideal field ambulance body will be evolved.

It may be asked why the competition is restricted to designs for a body and not for the complete ambulance, including a chassis. The reason is that a chassis takes much longer to build than a body, and that, when war breaks out, it is impossible to get at short notice anything like a sufficient number of any one type of chassis. On the other hand, a standardized body to fit any chassis of approved dimensions can be constructed in numbers at comparatively short notice. And a perfected body is badly wanted to ensure complete comfort for the wounded.

It is hoped that the information obtained by the competition, and in other ways, will be published in some permanent form available for future reference. Probably in addition to one design of special excellence there will be submitted various ingenious suggestions which may be incorporated in the pattern design approved by the commission. For these a portion of the prize money has been set apart. The first prize is of £1000, the second £500, and the third £300. All details of conditions may be obtained from the secretary the Ambulance Construction Commission, 10 Henrietta street, Cavendish Square, London, W. The competition is open to citizens of all nations.

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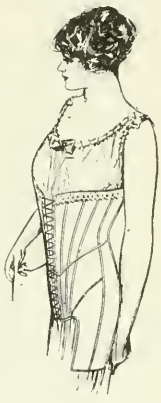

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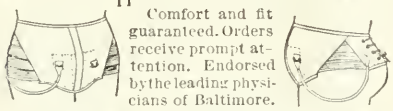

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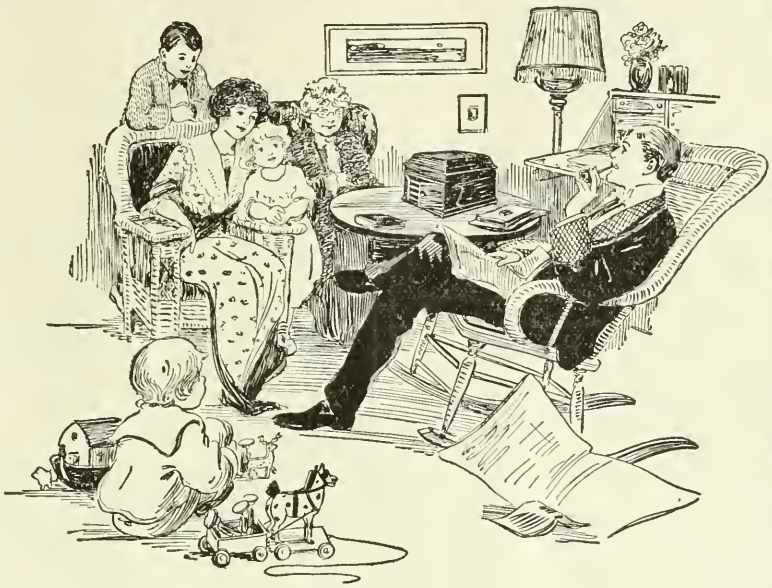
This fraud, which was exposed at an action tried before the Supreme Court of Victoria at Melbourne, and others reported before in the medical literature, show that every physician should see that his patient gets exactly what he prescribed. No "just as good" allowed.

Bacterial-Vaccine Therapy.

THE treatment of infectious diseases with preparations derived from corresponding microorganisms long since passed the experimental stage, and bacterial vaccines may be said to occupy an assured place in therapeutics. These vaccines, as is doubtless well known to most physicians, are suspensions, in physiologic salt solution, of killed bacteria. An important effect of their administration is to raise the destructive power of the patient's leucocytes against the specific living invaders. Injected into the human organism, bacterial vaccines have an effect similar to that produced on the horse by the introduction of toxins or killed cultures: they cause active immunity. In other words, the administration of a dose of bacterial vaccine stimulates the patient to produce an additional supply of antibodies, thus enabling him to resist the disease.

Bacterial vaccines have several advantages over the ordinary forms of medication. They are determinate or specific in the respective infections in which they are indicated. Their employment relieves the patient of the necessity of frequent "dosing." Being administered by the physician, or under his direct supervision, they enable him wholly to control his cases.

Some idea of the scope which bacterial-



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vaccine therapy has come to assume may be gathered from an announcement which Parke, Davis & Co. are making in current medical journals and which physicians will do well to consult. Twenty-three vaccines are listed in the advertisement. They are supplied in 1-Cc. glass syringes, 1-Cc. glass bulbs, 5-Cc. vials and 20-Cc. bottles, all sealed in a manner that guarantees the sterility of their contents. The syringes are designed for the use of physicians who desire to inject the fluid without first removing it from the original container.

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To guard them from the bronchial and pulmonary inflammations to which they are unusually susceptible, many physicians make it a routine practice to put the weak and anemic members of their families on Cord. Ext. Ol. Morrhuae Comp. (Hagee) just as soon as cold and changeable weather sets in. The value of this preventive measure lies in the power of Cord. Ext. Ol. Morrhuae Comp. (Hagee) to make blood and add resistance to tissues.

Alcresta Tablets of Ipecac.

THE discovery that ipecac alkaloids are efficient endamebicides in the treatment of amebic dysentery and pyorrhea, and that it is possible by means of Alcresta Tablets of Ipecac to administer the drug orally without causing nausea, has attracted nation-wide attention among physicians and dentists.

While the treatment of pyorrhea, which is much more common in this country than amebic dysentery, is essentially the dentist's field, the fact that many patients of the physician are observed to be sufferers from this very common malady and that many systemic disorders yield to pyorrhea treatment, makes the subject one of practical interest to the physician.

The properties of ipecac are so well known that many practitioners have expressed a desire to know just how it is possible to administer the alkaloids of ten grains of ipecac orally without causing nausea. In Alcresta Tablets of Ipecac the alkaloids are held as adsorption compounds with a form of hydrated aluminum silicate. In the stomach where the juice is acid the tablets disintegrate, but the alkaloids of ipecac are not liberated. In the intestines where the secretions are alkaline, emetine and the other ipecac alkaloids are quickly released and subsequently enter the circulation.

As a rule, headaches and digestive disorders, associated with pyorrhea, are ameliorated or relieved after taking Alcresta Tablets of Ipecac, and good authorities aver that it has shown marked beneficial results in many other ailments. Literature and further information on Alcresta Tablets of Ipecac, Lilly, may be had by addressing the company at Indianapolis.

Reduction of Nerve Tension.

ONE of the most positive therapeutic powers possessed by PASADYNE (Daniel), the Concentrated Tincture of Passiflora Incarnata, manifests itself in states of a high nervous tension. As a rule, the sufferers are poorly equipped with moral resistance, and consequently it is of the highest importance in choosing remedial measures to guard against agents which might establish a habit. In using PASADYNE (Daniel) the physician need not give this possibility any heed, for it is quite free from such a disadvantage. In a wide variety of nervous affections PASADYNE (Daniel) is of the utmost value, which is further enhanced by its freedom from evil consequences. A sample bottle may be had by addressing the laboratory of John B. Daniel, Inc., Atlanta, Ga.

Convalescence.

AFTER a long and serious illness the functional activity of the digestive tract is always depressed, and as a consequence during convalescence no line of treatment is more urgently required or more positive in its benefits than measures capable of promoting the physiologic efficiency of the digestive organs. Tonics are more or less serviceable, but inasmuch as the profession have in Seng a true digestive secernent, this remedy is the one generally turned to by physicians who are familiar with its exceptional therapeutic value. Under its systematic use the secretory glands of the stomach are gradually restored to their normal activity, and as this takes place the nutrition of the whole body naturally shows a corresponding improvement. Since convalescence and a return to perfect health are always largely dependent on the restoration of the nutritional equilibrium, it can readily be seen how useful Seng is following an acute illness. Certainly no medical man who has ever tried this effective remedy in the treatment of some weak, de-

bilitated patient, and observed the response which the digestive functions make to its tonic influence, will deny to similar patients the benefits he knows it will give.

The Neurasthenic Invalid.

Like the poor, the neurasthenic is "always with us," and while the stress and strain of modern life and living continue, the physician will be called upon to treat the more or less chronic invalid who exhibits all sorts of bizzare symptoms, in endless and kaleidoscopic variety. It is, of course, an easy matter to advise the physician to search out and remedy the operative cause of the disorder, but it is not always as easy to do this, especially when no organic changes are discoverable. While purely symptomatic treatment may be unscientific, it is usually essential, in order to gain and retain the confidence of the patient. There is, however, one pathologic finding in a large majority of cases, and that is anemia of greater or lesser degree. In some instances this may be found to be the essential cause of the neurotic symptoms. In any event, this condition should be corrected, and for such purpose there is no better remedy than Pepto-Mangan (Gude). When a hematinic is indicated for a nervous, cranky man, or a finicky, more or less hysterical woman, Pepto-Mangan is peculiarly serviceable, as the patient cannot consistently object to the taste, which is agreeable to everyone. The digestion is not interfered with in the least, constipation is not induced, and the blood-constructing effect of the remedy is prompt and certain. It is always worthy of trial not only in the anemia of the neurasthenic invalid, but also in all conditions of blood and tissue devitalization.

In Hippocrates' time, constipation and intestinal indigestion were overcome by means of purging and the advice that the patient should not eat garlic, cheese and hot bread. Three hundred years later Aretæus endeavored to found pathology on a firm basis and described intestinal ulcer in dysentery. Celsus in 100 A. D. gave enemas instead of purgatives, and used aloes for constipation. Alexander of Trallex in the seventh century taught that opium should be used with caution in diarrhœa, and Paulus Aegineta about the same time used rhubarb as a cathartic, while in the tenth century senna and licorice were added.—*When Did It Happen? Published by Reed & Carnrick.*

The Bladder Ills of the Aged.

Certain bothersome bladder troubles of elderly people are often due quite as much to systematic debility as to local weakness. Lack of space prevents any extensive consideration of the subject, but if the whole body is debilitated the metabolism is sure to be deranged, the bowels become sluggish and an increased amount of abnormal or waste products find their way into the urine. These are more or less irritating and account not infrequently for the low-grade form of cystitis that accompanies the "run-down" state of the aged. In such cases tonic medication is urgently indicated, and the well-known capacity of Gray's Glycerine Tonic Comp. for promoting functional activity and increasing bodily elimination gives it a special utility in the management of any bladder trouble in which metabolic depression or derangement is a factor.

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In this connection it is no exaggeration to state, moreover, that few remedies are more serviceable in all conditions calling for tonic or upbuilding measures than Gray's Glycerine Tonic Comp.

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For the information of physicians who are unfamiliar with its nature and origin, it may be said that Taka-Diastase is obtained from the fungus aspergillus oryzae, which from time immemorial has been used in Japan for the saccharifying of rice. This fungus contains not merely an amylase, but a mixture of various enzymes. It possesses amylolytic power to a much greater degree than any of the other species of the aspergillus family.

Taka-Diastase is serviceable in the treatment of amylaceous dyspepsia, in chronic gastritis, in hyperacidity, in the vomiting of pregnancy, in infantile diarrhea and dysentery. It may be prescribed in liquid, powder, tablet and capsule forms, also in combination with other agents in capsules and tablets. It should be taken during or immediately after meals in order that it may act upon the starches in the stomach before the acid wave sets in.

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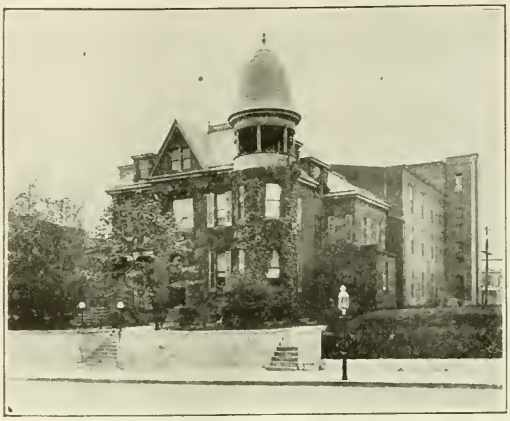

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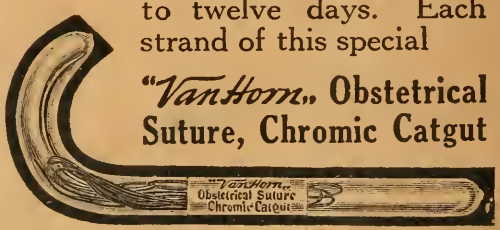

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